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Processes by which Confidence (vs. Doubt) Influences the Self

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Why is it that two people can have the same self-views (e.g., that they are extroverted), yet behave in substantially different ways (e.g., one is very talkative whereas the other seems aloof)? Similarly, why might a person view him or herself as competent, organized, and warm, and yet feel unqualified for a job that requires these traits? We believe that the answer to these questions sometimes lies in differences in the confidence with which people hold their self-views and self-evaluations. In this chapter we review research that demonstrates that as the confidence a person holds in a self-view or self-related thought increases, so does the subsequent impact of that view or thought on judgment and behavior. Conversely, the greater the doubt in a self-view, the less likely it is for that self-view to have an impact. Thus in general, confidence magnifies the influence of a mental content, whereas doubt attenuates and sometimes even reverses it (Petty, Briñol, Tormala, & Wegener, 2007).

It is important to begin by distinguishing between primary and secondary cognition. Primary thoughts are those that occur at a direct level of cognition and involve our initial associations of some object with some attribute, such as "I am intelligent," "I have low self-esteem," or "I am consumed with doubt." Following a primary thought, people can also generate other thoughts that occur at a second level that involve reflections on the first-level thoughts (e.g., "I am not sure how smart I really am" or "I am certain that I am not worthy"). *Meta-cognition* refers to these second-order thoughts, or our thoughts about our thoughts or thought processes (Jost, Kruglanski, & Nelson, 1998; Petty, Briñol, Tormala et al., 2007). In this chapter, we will focus on one of the most essential dimensions of meta-cognitive thought: the degree of *confidence* (versus *doubt*) people place in their thoughts.¹

An important aspect of meta-cognitive confidence is that it can apply to any accessible mental contents, including self-related cognitions ranging from personality and self-esteem to momentary self-views and automatic associations. The research described in this chapter is organized around the content of these primary self-related cognitions.² First, we describe how meta-cognitive confidence applies to primary cognitions relevant to self-traits and self-evaluations. Then, we describe research showing that thought-confidence can mediate the influence of thoughts on different judgments. Third, we present research revealing that self-doubt can also be held with different levels of meta-cognitive confidence, and that those variations are consequential. Fourth, we examine how confidence can be associated not only with easily reportable self-views, but also with more automatic associations

regarding the self. Next, we describe a number of additional non-meta-cognitive processes by which confidence can influence judgment and behavior. Finally, we distinguish among the processes by which confidence operates, and specify the conditions under which each of the specified processes is more likely to occur. In closing this chapter, we outline some general conclusions and directions for future research.

META-COGNITIVE CONFIDENCE

The self is an entity marked by reflexive consciousness (e.g., Baumeister, 1998), and can be understood as an attitude object that includes different components that influence thoughts and actions (Campbell et al., 1996; Greenwald & Pratkanis, 1984). For example, the self includes one's cognitive representation of oneself, including self-traits and self-knowledge, as well as one's evaluation of oneself, or self-esteem. Similar to any other attitude object, the relevant beliefs (self-concept) and evaluations (self-esteem) toward the self can be accompanied by meta-cognitions about their origin, content, evaluation, amount, and so forth (Petty, Briñol, Tormala et al., 2007). This section reviews the importance of considering meta-cognitive confidence about different aspects of the self. Similar to the literature in other domains, confidence typically has been measured by asking people to rate the degree to which they are certain or uncertain about their self-beliefs or their self-esteem.³ In this section, we argue that it is critical to consider meta-cognitive confidence in order to understand the functioning and stability of the self-concept and self-esteem (see also DeMarree, Petty, & Briñol, 2007a).

Meta-Cognitive Confidence in Self-Related Beliefs and Evaluations

In this review, we use concepts from the attitude literature as our organizing framework to discuss the self (see, e.g., DeMarree et al., 2007a; DeMarree, Petty, & Briñol, 2007b, for a review on the parallels between the attitude and self literatures). For example, attitude certainty is often treated as an indicator of attitude strength. That is, it is associated with the resistance and stability of attitudes, as well as their ability to influence thought, judgment, and behavior (see Petty, Haugtvedt, & Smith, 1995; Visser, Bizer, & Krosnick, 2006). Similar to the literature on attitude strength (Petty & Krosnick, 1995), self-beliefs that are held with greater confidence are also more predictive of behavior.⁴ Thus, the confidence with which people hold their self-related beliefs (e.g., "I'm cool") has a number of implications for behavior. In general, to the extent that individuals are certain of their self-beliefs, they are more likely to act according to them. For example, people who are certain that they are humorous and lazy are likely to choose situations that allow them to be funny and avoid those that demand them to be productive.

In research relevant to the idea that certainty in self-concepts can increase trait-consistent action, Setterlund and Niedenthal (1993) manipulated self-concept certainty by asking participants to describe three times when they acted in a way that was consistent (confidence) or inconsistent (doubt) with traits previously rated as highly self-descriptive. The authors found that only individuals who presumably were manipulated to feel certain about their self-concept were likely to use the self to guide decisions in a subsequent task in which they had to choose situations that allowed them to express aspects of their identity.⁵

Furthermore, paralleling the literature on attitude strength, self-beliefs that are held with greater confidence are not only more predictive of behavior, but also are more stable and resistant to change. For example, people who report greater certainty about their self-beliefs have been found to be more stable in their self-views (Pelham, 1991) and more

motivated to verify aspects of the self (e.g., Pelham, 1991; Swann & Ely, 1984). Pelham and Swann (1994) showed that people are more likely to actively solicit self-view-consistent social feedback (i.e., to actively seek out feedback that supports their existing self-views) in domains in which they are most certain. Pelham and Swann (1994) also showed that interaction partners are more likely to confirm a person's confidently held self-views rather than those held with doubt. In short, when people report high confidence in their self-views, they are likely to behave and to be perceived in ways that are consistent with those personal views.

The confidence with which self-beliefs are held also can influence other important outcomes, such as resistance to change. Similar to the literature on attitude strength that demonstrates that attitudes held with greater certainty are more resistant to change (e.g., Bassili, 1996; Tormala & Petty, 2002), self-beliefs that are held with greater confidence are also more difficult to change. Swann and Ely (1984) found, for instance, that people who reported being relatively uncertain about their traits (e.g., extraversion) showed more change in response to an interaction partner's expectations than those who were certain about their traits. In follow-up research, Swann, Pelham, and Chidester (1988) replicated this finding and showed that individuals high in self-belief certainty not only resist leading questions better than those with relatively low certainty, but also showed more boomerang effects. That is, leading questions can cause people who are certain to change in a direction opposite to the leading questions when encouraged to make statements that are consistent with but more extreme than their own beliefs. Subsequent research has shown that self-belief confidence can also influence how people resist other forms of influence (see DeMarree et al., 2007a, for a review).

As noted earlier, people can have confidence in their self-related beliefs as well as in their overall evaluation of the self. The confidence with which people hold their self-esteem has been found to have a number of important implications for different domains (e.g., Harris & Snyder, 1986). For example, Pelham and Swann (1994) found that self-views (both self-beliefs and self-esteem) matched other's views of oneself more strongly when the self-views were reported to be relatively certain. These findings suggest that the need to be consistent operates mostly for aspects of the self-concept that are held with confidence.⁶

Meta-Cognitive Confidence in Self-Related Thoughts

The research described so far has revealed that self-related constructs held with certainty are more predictive of various judgments and behaviors. Unlike research that examines certainty in global attitudes or general self-views, recent research has examined certainty in more specific self-related cognitions. Most of this research has been guided by the self-validation hypothesis (Petty, Briñol, & Tormala, 2002)—the idea that people consider the validity of their thoughts before using them to form judgments. In the domain of attitude change, research on self-validation has found that measuring and manipulating the confidence people have in their thoughts to a persuasive message enhances prediction of the attitudes that are formed, beyond simply considering the valence and number of thoughts (for a detailed review of self-validation, see Briñol & Petty, 2004, 2009).

In one example of research applying self-validation to self-evaluation, Briñol and Petty (2003, Experiment 4) examined whether confidence in self-relevant thoughts could be impacted in a manner similar to thoughts about other objects and issues. In this research, as part of a presumed graphology study, participants were required to think about and write down their best or worse qualities (thought-direction manipulation) using their dominant or non-dominant hand. Then, participants rated the confidence in their thoughts and reported their self-esteem. Because writing with the non-dominant hand is very infrequent

and difficult, and whatever is written with the non-dominant may appear “shaky,” it was expected and found that using the non-dominant hand decreased the confidence with which people held the thoughts they just listed. As a consequence of the differential thought-confidence, the effect of the direction of thoughts (positive/negative) on current self-esteem was significantly greater when participants wrote their thoughts with their dominant rather than their non-dominant hand. That is, writing positive thoughts about oneself with the dominant hand increased self-esteem relative to writing positive thoughts with the non-dominant hand, but writing negative thoughts with the dominant hand resulted in the opposite effect.

This study reveals that bodily responses can influence self-evaluation by affecting the confidence with which people hold their self-related thoughts. In another study examining this meta-cognitive process in the domain of self-evaluation, Briñol, Petty, and Wagner (in press) asked participants to think about and write down their best or worse qualities while they were sitting with their back erect and pushing their chest out (confident posture) or slouching forward with their back curved (doubt posture). Then, participants completed a number of measures and reported their self-esteem. In line with the self-validation hypothesis, it was predicted and found that the thoughts generated about the self only affected self-attitudes in the relatively high confidence posture. Conceptually similar to the previous study, the effect of the direction of thoughts on current self-esteem was greater when participants wrote their thoughts in the confident rather than the doubtful body posture.⁷

These studies demonstrated that inducing doubts about possessing positive qualities tended to undermine self-esteem whereas inducing doubt about possessing negative qualities tended to enhance self-esteem. Importantly, Briñol and Petty (2003; Experiment 4) showed that these changes in self-esteem were mediated by changes in the certainty of the self-beliefs listed. Subsequent research has replicated these effects on self-thoughts using other validating variables, including a measure of individual differences in chronic self-confidence (e.g., for a description, see DeMarree et al., 2007a).

Tormala, Falces, Briñol, and Petty (2007; Experiment 3) provided a conceptual replication of these findings using a different paradigm to manipulate self-belief confidence. Participants in this research were asked to think of, and write down, episodes in which they have behaved assertively and then asked to judge their own assertiveness (see Schwarz et al., 1991). The confidence in these self-beliefs was manipulated by asking participants to generate just a few (easy) or many (difficult) assertive-related episodes. Previous research on ease of retrieval has clearly established that this procedure can influence the ease with which thoughts come to mind (Schwarz et al., 1991), and that ease influences the confidence with which people hold their retrieved thoughts (Tormala, Petty, & Briñol, 2002). Results of this study showed that participants reported feeling more assertive after recalling few (confidence) rather than many (doubt) assertive behaviors (see also Hermann, Leonardelli, & Arkin, 2002). Most important for the present concerns, this study by Tormala and colleagues (2007) showed that the changes in assertiveness were mediated by changes in the certainty of the self-beliefs listed.

Taken together, the available research suggests that different self-judgments (e.g., self-esteem; assertiveness) can be influenced not only by the *content* of the self-relevant thoughts that come to mind (strengths vs. weakness; past assertive behaviors), but also by the *confidence* with which those thoughts are held. Thus, consistent with the self-validation framework, confidence stemming from relatively irrelevant sources, such as handwriting or ease of retrieval, can become associated with self-thoughts. These studies are also important because they demonstrate that changes in the confidence with which self-related beliefs are held can mediate the influence of those thoughts on subsequent judgments.

In closing this section, it is important to note that the self-validation findings just described have been most pronounced under high thinking conditions. For instance, in prior research, ease of retrieval and embodiment affected confidence in thoughts for individuals with a high need for cognition (i.e., people predisposed to think carefully; Cacioppo & Petty, 1982) but not for those low in need for cognition (i.e., those inclined not to think carefully), and affected confidence when personal involvement was high but not when it was low (Briñol & Petty, 2003; Tormala et al., 2002). Relatively high thinking is presumably a requirement for these meta-cognitive effects for a least two reasons. First, if people have very few self-related thoughts, then thought-confidence has little content on which to operate. Second, the same variables that would increase thinking in general (e.g., issue importance; Petty & Cacioppo, 1979) would also likely increase caring about one's thoughts. If people do not care enough to generate thoughts in the first place, they are hardly likely to care enough to think about the validity of their thoughts.⁸

Meta-Cognitive Confidence in Self-Doubts

As described, meta-cognitive confidence can be associated with anything that is currently available in people's mind, including different kinds of self-attributes, self-evaluations, and self-related thoughts. That is, confidence can be applied to whatever the salient mental elements are at the time, regardless of the specific content, direction, and nature of these various cognitions. Given that meta-cognitive confidence can be applied to any self-related cognition, an interesting case to examine would be when people have confidence (or doubt) in their own mental doubts. That is, doubt can be the content of primary cognition, and therefore people might vary in the extent to which they have confidence in that self-doubt.

For example, consider a person who suffers from chronic self-doubt that is typically conceptualized and measured as a belief about oneself (e.g., “I often feel I am an insecure person”).⁹ If people with chronic doubt are given a situational induction of certainty, they might apply this sense of confidence to the chronic doubt, which would further reinforce the doubt (e.g., “I'm confident that I am an insecure person”). On the other hand, if people with the same chronic doubts were given a situational induction of doubt, they might apply this doubt to the chronic doubts, which could lead to the opposite conclusion (e.g., “I'm not confident that I am insecure; therefore, I might be a secure person”). If these processes occur, then a person with chronic doubt who was given a doubt induction would feel more certainty than a person with the same chronic doubt who was given a certainty induction. This prediction stands in stark contrast to what would be predicted from an additive combination of chronic and state uncertainty in which cases of “double doubt” would be associated with extreme uncertainty.

These ideas about double doubt were tested in a series of studies (Wichman et al., 2009). For example, in one study, the causal uncertainty (CU; Weary & Jacobson, 1997) scale was used as an individual difference measure of doubt. CU is a measure of chronic uncertainty about the causes of events, and is generally associated with more careful processing of causally relevant information. In this study (Wichman et al., 2009, Study 1), some participants were primed with doubt, and then it was observed how this affected their uncertainty in causal judgments. It was expected and found that high chronic CU participants became less uncertain after exposure to the doubt prime, as the prime presumably caused them to doubt their doubt. Low CU participants, however, not having chronically accessible uncertainty, were not found to show this effect. Ironically, this study suggests that one way to reduce self-doubt might entail inducing additional doubt.

An important question that we address next is the extent to which the reduction in uncertainty produced by double doubt is consequential.

Past research on information processing suggests that higher levels of doubt are associated with greater information processing. This has been demonstrated both with individual differences in uncertainty (e.g., Weary & Jacobson, 1997) and manipulations of doubt. For example, Tiedens and Linton (2001) instructed participants to write about a time they were sad and *certain* or a time they were sad and *uncertain*. Participants then received a persuasive message for a camcorder that contained either strong or weak arguments in favor of purchasing the product. In this type of paradigm, amount of processing is gauged by the degree to which participants' attitudes discriminate between weak and strong arguments (see Petty & Cacioppo, 1986). As predicted, participants more strongly discriminated between weak and strong arguments when they had previously written about a time when they were sad and uncertain as opposed to when they had written about a time when they were sad and certain. In other words, uncertainty prompted greater information processing.

In one study, this information processing paradigm was used to assess the consequences of undermining doubt by making people doubt their doubts. Specifically, Wichman et al. (2009, Study 2) manipulated the extent to which participants relied on their own doubt as measured with the self-doubt scale (Oleson, Pohlmann, Yost, Lynch, & Arkin, 2000) rather than with the CU scale. To test the processing implications of double doubt, a sample of high self-doubt individuals was randomly assigned to either a doubt priming or neutral priming condition. Thus, half the participants were essentially placed in a state of single doubt (high chronic self-doubt with the neutral prime) and half were placed in a state of double doubt (high chronic self-doubt with the doubt prime). Then, participants were randomly assigned to receive strong or weak arguments in favor of a foster care program. The gist of a strong argument in favor of the foster program was that brothers and sisters are an additional source of love and support for the social development of the child. In contrast, the gist of a weak argument in favor of the foster program was that the program recognizes that children need other children to fight with, and brothers and sisters provide an ideal opportunity for this to occur. As noted, considerable prior research has shown that when people are either unable or unmotivated to process a message, the impact of the quality of the arguments on judgment is less than when motivation and ability to process are high (Petty & Cacioppo, 1986). Based on the literature on uncertainty and message processing described above, those in a state of single doubt were expected to process information more carefully and therefore to discriminate between weak and strong persuasive arguments more so than individuals experiencing double doubt. This is because double doubt should lead to less uncertainty. Consistent with this reasoning the results revealed that conditions associated with single doubt (e.g., high chronic self-doubt with the neutral prime) produced greater information processing (i.e., more argument-quality effects) than conditions associated with double doubt (e.g., high chronic self-doubt with the doubt prime).

These studies reveal that people's primary beliefs about themselves (low versus high doubt) can be qualified by a situational uncertainty induction in a way consistent with the meta-cognitive logic. Although these findings are open to alternative interpretations (e.g., participants in the double doubt conditions might have shown reduced processing because they were more confused rather than more certain), they provide preliminary evidence in favor of the possibility that making people doubt their doubt can reduce subsequent uncertainty and thus reverse the effects of chronic doubt on information processing.¹⁰ This line of research is also consistent with the idea that meta-cognitive confidence (and doubt) can be associated with any type of cognition, including one's own doubts.

Meta-Cognitive Confidence in Self-Related Automatic Associations

The studies described in previous sections illustrate that self-validation can provide a useful framework for understanding how a wide variety of self-related cognitions can be validated (confidence) or invalidated (doubt) by a diverse set of variables. Whether the manipulations involved handwriting, ease of retrieval, or priming, and whether the primary self-cognitions were descriptive or evaluative in nature or related to confidence or doubt, self-validation effects were apparent suggesting that people can vary in the extent to which they rely on self-relevant mental contents.

As a final example of this meta-cognitive logic, consider a case in which the self-relevant mental contents are activated automatically. According to the Meta-Cognitive Model of attitude structure (MCM; Petty & Briñol, 2006a, Petty, Briñol, & DeMarree, 2007), attitudes consist of evaluative associations (positive and negative) along with validity tags that can be represented in various ways, such as confidence/doubt. Similar to the work on self-validation, which suggests that thoughts (positive or negative) only determine judgment to the extent that people trust them, the MCM assumes that evaluative associations will correlate most highly with deliberative judgments when validity tags are also considered. An important aspect of the MCM is the notion that validity tags can be stored together with the evaluative links. Thus, not only can confidence be assessed online but it can also be stored, thereby affecting later deliberative judgments.

The MCM framework is similar to that described above in highlighting the importance of considering the confidence associated with mental constructs (both online and stored), but it differs in the particular constructs of interest. Whereas the research described earlier examines certainty in self-views or thoughts that are easily reportable, MCM research examines certainty in automatic associations that might or might not be as easy to report. Automatic associations are typically assessed with implicit measures, and these associations are important because of their pervasive influence on information processing and judgments (see Petty, Fazio, & Briñol, 2009, for a review). Similar to research on self-validation that reveals that meta-cognitive confidence increases the use of primary cognition, the MCM postulates that the more confidence people have in the validity of an automatic evaluation, the more they are likely to report it on a deliberative measure. In contrast, when an automatic association is rejected because people have doubt in or deny the evaluative link, people are less likely to use it when responding to a deliberative measure.

Importantly, the MCM argues that although people might not use evaluative links associated with doubt when deliberately responding to explicit measures, those automatic associations can still be influential in a number of ways. First, these associations can influence more automatic measures and behavioral outcomes. Second, and most uniquely, the discrepancies between automatic and deliberative responses (i.e., explicit-implicit discrepancies) that are a consequence of these validity tags can produce implicit forms of ambivalence (for a review, see Petty & Briñol, 2009b). Indeed, explicit discrepancies (e.g., attitudinal ambivalence) are often associated with explicit doubt and doubt-related consequences. For example, Jonas, Diehl, and Bromer (1997) provided empirical evidence that evaluative inconsistency evokes elaboration of related information in order to achieve a sufficient level of confidence with respect to the overall evaluation of the object. Bargh, Chaiken, Gøvender, and Pratto (1993) also suggested that evaluative inconsistency might be related to doubt, because response latencies (i.e., attitude accessibility) were found to be slower for explicitly ambivalent participants (see also Costello, Rice, & Schoenfeld, 1974). Indeed, one function particular to ambivalent attitudes—and, perhaps, also to explicit-implicit discrepant selves—seems to be reducing action readiness and promoting elaborated thinking about relevant information in order to reduce doubt and increase

knowledge about the target (e.g., Hänze, 2001; Hodson, Maio, & Esses, 2001; Jonas et al., 1997).¹¹

Based on the research linking explicit ambivalence and doubt, it seems reasonable that explicit-implicit self-discrepancies might also be consequential. For example, different lines of research have found that having incongruent explicit (e.g., self-ratings) and implicit (measured by the Thematic Apperception Test, TAT; Proshansky, 1943) motive profiles was associated with reduced emotional well-being (e.g., Shedler, Mayman, & Manis, 1993; Weinberger & Haradaway, 1990). Other recent research has demonstrated that people who scored relatively high on an explicit measure of self-esteem, but relatively low on an implicit measure (the Implicit Association Test, IAT), exhibited the most self-aggrandizement across different indices (Bossion, Brown, Zeigler-Hill, & Swann, 2003), which is the main characteristic of a narcissistic personality. Additionally, individuals with the combination of relatively high scores on explicit measures of self-esteem and relatively low scores on implicit measures have been shown to be particularly defensive (for a review, see Jordan, Logel, Spencer, & Zanna, 2009).

Explicit-implicit self-discrepancies might not only be associated with consequences that appear to be negative or dysfunctional, but might also be associated with uncertainty or doubt. However, because of the conscious rejection of one association, this doubt might lie below conscious awareness. Consistent with this reasoning, we found that as explicit-implicit discrepancy in self-esteem increased, the strength with which participants automatically associated doubt-words with self-words on an IAT (Greenwald, McGhee, & Schwartz, 1998) also increased (see Petty & Briñol, 2009b, for a description). However, increased discrepancies were not associated with explicit reports of self-uncertainty. This suggests that the self-doubts that accompany implicit-explicit discrepancy are either not open to conscious awareness or are explicitly denied.

In a series of studies Briñol, Petty, and Wheeler (2006) have shown that discrepancies between automatic and deliberative measures of self-evaluation can lead to some of the same consequences as explicit ambivalence. As noted earlier, one well-known consequence of the doubt that emerges from explicit ambivalence is that it leads to enhanced information processing in a presumed attempt to resolve the ambivalence. In one study testing the notion that explicit-implicit discrepancy could lead to enhanced information processing (Briñol, Petty, & Wheeler, 2006, Experiment 4), undergraduates' self-evaluations were assessed with both automatic and deliberative measures and then the absolute value of the difference between the two standardized measures was calculated as the index of discrepancy. Next, participants were exposed to either a strong or weak message about eating vegetables that was framed as self-relevant or not. An example argument in favor of vegetable consumption was that vegetables have more vitamins than most vitamin supplements on the market, making them particularly beneficial during exam and workout periods. The gist of one of the weak arguments in favor of vegetables was that vegetables are becoming more popular for wedding celebrations because they are colorful and look beautiful on plates. The degree to which participants processed the message information was assessed by examining the extent to which the quality of the arguments affected post-message attitudes toward vegetables. As noted earlier, when people are thinking carefully about information, they should be more affected by the quality of the arguments that a message contains than when they are not thinking carefully (see Petty & Cacioppo, 1986).

The results of this study on implicit-explicit self-discrepancies revealed that when the message was framed as self-relevant (i.e., relevant to one's personal lives and thus relevant to the discrepancy), the extent of explicit-implicit self-discrepancy interacted with argument quality to affect attitudes. The greater this discrepancy, the more participants differentiated

strong from weak arguments. However, when the same strong and weak messages were framed as irrelevant to the self (i.e., the message was said to be about the properties of vegetables), discrepancy did not interact with argument quality to predict attitudes. This suggests that explicit-implicit self-discrepancies do not lead to motivation to process all information—only that relevant to the object in which the discrepancy occurs.

In another study in this line of research (Briñol, Petty, & Wheeler, 2006; Experiment 1), the trait of shyness was used as a specific dimension of personality. Asendorpf, Banse, and Mücke (2002) have demonstrated that automatic measures of shyness uniquely predicted spontaneous (but not controlled) shy behavior, whereas deliberative ratings uniquely predicted controlled (but not spontaneous) shy behavior. Using the same automatic (IAT) and deliberative (ratings on descriptive adjectives) shyness measures validated by Asendorpf et al. (2002), participants were classified according to their explicit-implicit discrepancies. Participants were then exposed to a message containing strong or weak arguments directly relevant to shyness. The gist of one strong argument in favor of shyness was that shy people have been rated as better friends and partners, because they tend to have interpersonal relationships that are more sincere, committed, stable, and satisfactory. In contrast, the gist of one weak argument in favor of shyness was that shy people tend to talk less than extraverted interviewers, making other shy people feel more comfortable. After reading the message, participants were told that it was important to know what their personal views were on the benefits of shyness, and to complete a measure of their attitudes toward shyness as a trait. As predicted, participants with a large explicit-implicit discrepancy were found to be more attentive to the persuasive message than those with a small discrepancy. This enhanced thinking was evidenced in greater discrimination between the strong and weak arguments received on attitudes towards shyness.

In line with the MCM, this research reveals that when people doubt their stored associations (and therefore do not use them when deliberately responding), those associations can still influence more automatic measures, creating what has been called implicit ambivalence (Petty, Tormala, Briñol, & Jarvis, 2006; Petty & Briñol, 2009b), and thereby have an impact on subsequent information processing. Thus, although people might not report feeling any sense of doubt about a given object or trait, this research suggests that they still might have consequential implicit doubts and discomfort associated with that concept.

In sum, our review so far has documented that the distinction between primary and secondary cognition is useful to understand a number of phenomena relevant to self-doubt. Regardless of the nature of the primary cognition (global or specific self-views, descriptive or evaluative, deliberative or automatic, related or unrelated to doubt), meta-cognitive confidence (vs. doubt) has been found to magnify the effect of any content that is currently available in people's minds. In the next section, we describe other processes by which confidence can influence judgment. Unlike the self-validation process, which is meta-cognitive in nature, the mechanisms examined next operate at the primary level of cognition.

Multiple Roles of Confidence

In accord with the Elaboration Likelihood Model of persuasion (ELM; Petty & Cacioppo, 1986), we argue that confidence, like other variables, can play different roles in information processing and judgment depending on the circumstances. As reviewed so far, confidence can influence judgment by validating (or invalidating) self-relevant thoughts. As noted, examining the validity of thoughts is a form of meta-cognition, and therefore it requires high thinking conditions (Petty, Briñol, Tormala et al., 2007). Indeed, research on the self-validation hypothesis has demonstrated that this mechanism requires a level of elaboration

that is sufficiently high for individuals to both generate thoughts and to care about their validity (Briñol & Petty, 2004, 2009).

Under other circumstances, however, confidence, like other variables, can affect judgment by alternative mechanisms. For example, confidence, like any other variable, can affect judgments not only by validating thoughts, but also by affecting the direction and amount of thoughts, and by serving as an argument or a simple cue.¹² Before describing these processes for confidence (and the conditions in which each is likely to occur), we begin with a consideration of how a person's incidental emotions can impact evaluative judgments according to the ELM. Emotion is a well studied variable and can provide a roadmap for uncovering the multiple roles for confidence.

First and most simply, when thinking is constrained to be low (e.g., due to many distractions), emotions tend to serve as simple associative cues and produce evaluations consistent with their valence (e.g., "I'm happy, I must like this;" Petty, Schumann, Richman, & Strathman, 1993). When thinking is high, one's emotions serve in other roles. First, emotions can be evaluated as evidence (e.g., negative emotions such as sadness or fear can lead to positive evaluations of a movie if these are the intended states; see Martin, 2000). Also, when thinking is high, emotions can bias the ongoing thoughts (e.g., positive consequences seem more likely when people are in a happy than sad state; e.g., DeSteno, Petty, Wegener, & Rucker, 2000). Conceptually similar to the research reviewed in this chapter, emotions can also operate when thinking is high by affecting confidence in thoughts (Briñol, Petty, & Barden, 2007). When the likelihood of thinking is not constrained to be high or low by other variables, emotions can affect the extent of thinking. For example, people tend to think about messages more when in a sad than happy state because sadness either signals a problem to be solved (Schwarz, Bless, & Bohner, 1991) or conveys a sense of uncertainty (Tiedens & Linton, 2001). If people process a message more when in a sad than happy state, this means that they would be more persuaded by cogent arguments when sad than happy but less persuaded by specious arguments. Various theories of emotion and social judgment have incorporated one or more of these processes highlighted by the ELM (e.g., Forgas, 2001). Notably, the ELM organizes these processes together into one overarching framework (see Petty, Fabrigar, & Wegener, 2003), and holds that these same processes can be used to understand not only the impact of incidental emotion, but also a plethora of other very different variables, such as confidence. Next, we describe how confidence can operate through these processes.

First, when thinking is low, confidence should serve as a simple associative cue and produce judgments consistent with its valence. Given that confidence is often seen as something good, and doubt as something bad (e.g., Briñol, Petty, & Tormala, 2006), confidence can operate through low effort mechanisms, such as mere association or reliance on simple heuristics. For example, when the extent of thinking is low, a person might draw direct inferences from confidence, such as "if I feel confident, I must like it."

Second, when thinking is high, confidence can serve in other roles. First, confidence can be evaluated as evidence when it provides diagnostic information about the merits of an object. For example, one's own confidence can be evaluated as evidence when deciding whether to apply for high (vs. low) competitive jobs. Similarly, in a job interview (presumably a high thinking situation), the confidence of the candidate could operate as a compelling argument not only for the interviewer (particularly for jobs that require assertive skills) but also for the interviewee to behave assertively.

Also, when thinking is high, confidence can bias thoughts in a positive manner, again assuming people have a naïve theory that confidence is positive (Briñol, Petty, & Tormala, 2006). In other words, if people are thinking, confidence is likely to make the self-thoughts generated more positive than they would be in the absence of such confidence. In such

cases, confidence (relative to doubt) would be likely to increase self-evaluations by biasing the self-thoughts that come to mind. As a consequence of this unrealistic optimism, even when engaged in careful and detailed thinking, confidence can lead people to underestimate their own faults.¹³ When people are thinking about things other than themselves, such as a persuasive proposal, self-confidence could result in negative outcomes. That is, when thinking about a proposal is high, confidence (vs. doubt) can lead people to defend their own existing attitudes more, and as a consequence generate more counter-arguments against the proposal or derogate the source.

Third, when elaboration is not constrained to be high or low, confidence has been shown to affect the extent of information processing, with confident people engaging in less thought than people lacking in confidence (e.g., Tiedens & Linton, 2001; Weary & Jacobson, 1997). One reason for this is that when people feel confident in their current views, there is little need to seek additional information that might lead to change. In contrast, when people lack confidence, they are likely to seek out and carefully scrutinize information that might provide a more validated opinion. Consistent with predictions, when confidence has been induced prior to message exposure, and elaboration was not constrained to be high or low, confidence (whether stemming from emotion or other factors) affected the extent of information processing, with confident people engaging in less thought than people lacking in confidence (e.g., Tiedens & Linton, 2001). Also consistent with this view, as noted earlier, other forms of doubt (stemming from a variety of self-discrepancies, such as explicit-implicit conflict) have been found to increase information processing (e.g., Briñol, Petty, & Wheeler, 2006; Petty et al., 2006). By considering additional information, individuals presumably hope to gain enough information for one or the other side of the discrepancy in order to resolve or minimize the inconsistency. For example, Woike and Baumgardner (1993) found that participants whose global and specific self-esteem were incongruent expressed greater interest in learning more about themselves than those whose self-worth was congruent. Importantly, however, this effect was only evident for participants who reported high confidence in their global and specific self-evaluations (see also Marsh, 1993).

In sum, the ELM has described a finite number of ways in which any variable can affect judgment. In accord with this framework, we have described in this section how confidence can operate by: (1) serving as a simple cue, (2) serving as a piece of substantive evidence (i.e., an argument), (3) affecting the direction of processing (i.e., introducing a bias to the ongoing thinking), and (4) affecting the extent of information processing by influencing motivation or ability to think. In earlier sections, we focused on a fifth mechanism through which confidence (and many other variables) can work—self-validation—which also appears to have considerable integrative potential. Unlike the roles described in this section, which focus on primary or first-order cognition, this new process emphasizes secondary or meta-cognition. Although we have already described the elaboration conditions under which these processes are likely to operate, other factors can also determine which of these processes are more likely to operate. We turn to these factors next.

Distinguishing Among the Different Processes by which Confidence Operates

We have described how the processes described above are dependent on contextual factors such as the specific level of elaboration in which a person engages. For example, the self-validation mechanism requires a level of elaboration that is sufficiently high for individuals to both generate thoughts in response to the message and to care about their validity. In contrast, in order for confidence to affect the amount of thought, elaboration must not be constrained to be overly high or low (because if elaboration is already set to

be very high or low, there is little room for confidence to further affect the extent of thinking).

Other contextual factors also come into play, such as the timing of the experience of confidence. Next we describe a line of research on self-affirmation processes in which timing was varied to demonstrate that the same variable (confidence manipulated via self-affirmation) can affect attitudes by different processes (e.g., affecting amount of thinking or self-validation) depending on when the confidence was induced.

In an initial study, Briñol, Petty, Gallardo, and DeMarree (2007) demonstrated that self-affirmation (i.e., satisfying the self-enhancement motive; Steele, 1988) can influence certainty. That is, participants who experienced a typical self-affirmation induction (i.e., affirming an important value) reported feeling more confident than controls. Manipulations of self-affirmation might increase participants' perceptions that they are correct in general. Also, because self-affirmation is predicted to enhance the "integrity" of the self (Steele, 1988), the self might be seen as a more credible and competent source of information, and thus a source in which a person can be confident (e.g., Greenwald & Albert, 1968).

Given the link between self-affirmation and confidence, we expected the confidence induced via self-affirmation to affect judgments by different mechanisms depending on whether it occurs before or after processing a persuasive message. To test this prediction, participants in this research were assigned to a self-affirmation or a control group before or after receiving a persuasive message composed of either strong or weak arguments. When self-affirmation was induced *prior* to a persuasive message and elaboration was unconstrained, it was predicted and found that the enhanced confidence from self-affirmation decreased the likelihood of careful information processing.¹⁴ As a result, self-affirmation led to reduced argument quality effects on attitudes compared to a no-affirmation condition (Briñol, Petty, Gallardo et al., 2007, Experiment 1). These findings suggest that the confidence induced by self-affirmation made participants rely on the validity of their initial position, and as a consequence they did not think carefully about the arguments included in the message.

In a second study, the extent to which self-affirmation can influence persuasion by a different mechanism when it *follows* (rather than precedes) a persuasive message was examined. Consistent with the self-validation hypothesis, when self-affirmation is induced after message processing, it cannot affect the extent of message processing but it should affect attitude change by influencing the extent to which people rely on the thoughts they have already generated to the message. Specifically, self-affirmation should lead to a greater argument-quality effect on attitudes than a non-affirmed condition because confident people would be more reliant on their positive thoughts to the strong message or negative thoughts to the weak message. To examine this possibility, participants in a high elaboration setting were asked to read an advertisement introducing a new cell phone containing either strong or weak arguments. After receiving the message, individuals affirmed either an important or unimportant aspect of their self-concepts. In accord with the self-validation framework, this study found greater argument-quality effects for self-affirmed than non-self-affirmed participants (Briñol, Petty, Gallardo et al., 2007, Experiment 2).

Taken together, these two studies suggest that self-affirmation (and the self-confidence it produces) can affect persuasion by different mechanisms depending on when it is introduced in the persuasive setting. In a subsequent experiment (Briñol, Petty, Gallardo et al., 2007, Experiment 3), a manipulation of whether self-affirmation was induced before or after receiving a persuasive message was used and the results obtained for the first two experiments were replicated. The findings of this research demonstrate that confidence (which emerges from self-affirmation) can operate through different processes depending

on other situational factors. Additional research on self-validation has provided convergent evidence in favor of the idea that confidence can influence judgment by affecting thought-confidence or thought-quantity depending on when confidence is induced. For example, the confidence that people experience when they are in a happy (vs. sad) mood (Briñol, Petty, & Barden, 2007) or in a powerful (vs. powerless) position (Briñol, Petty, Valle, Rucker, & Becerra, 2007) has also been found to influence a variety of judgments by different processes in different circumstances.

Thus, confidence can emerge from a wide range of individual and situational variables and, like any other variable, can influence judgments by a number of different processes depending on particular contextual factors (e.g., extent of thinking, and timing of the confidence). In line with the multiple-roles idea from the ELM, we have shown that confidence can lead to different outcomes (e.g., increasing or decreasing persuasion) by operating through different processes. Furthermore, we have also described how confidence can produce the same effect (e.g., a positive impact on judgment) through different processes (e.g., reduced thinking about weak arguments, validating positive thoughts already generated, serving as a positive cue), although presumably the subsequent consequences of those effects would be different.

Summary and Future Directions

We have described the basic mechanisms by which confidence can affect self and social judgments, highlighting the role of a recently discovered process, *self-validation*. This new process emphasizes secondary or meta-cognitive thought. The key notion of self-validation is that having self-related thoughts, beliefs, and evaluations is not sufficient for them to have an impact on judgment and subsequent behavior, at least when assessed with deliberative measures. Rather, one must also have confidence in those self-views. Next, we describe some remaining issues relevant to confidence and its influence on the self.

Confidence and Other Dimensions of Strength Although most of the research described in this chapter deals with confidence as the main meta-cognitive dimension, it is important to note that other meta-cognitive aspects can also be explored in relation to self-beliefs (Petty, Briñol, Tormala et al., 2007). For example, Pelham (1991) found that positive self-beliefs rated as important were associated with more stability than positive self-beliefs considered relatively less important (see also Sedikides, 1995). Other research has also shown that self-views that are highly accessible are more consequential in terms of durability and subsequent impact than less accessible self-views (for a review on the accessibility of self-views, see DeMarree, Petty, & Briñol, 2007b). Given that accessibility and confidence can be related (e.g., Holland, Verplanken, & van Knippenberg, 2003; Tormala et al., 2002, 2007), if a person enters a context that makes a specific self-view highly accessible (e.g., their athletic ability), this increased accessibility could lead them to be more certain of this view. It is worth noting that although importance, accessibility, and other features of attitudinal and self-representations are often related to confidence, they are relatively independent features of cognition (for further discussion, see DeMarree et al., 2007a, 2007b; Petty, Briñol, Tormala et al., 2007).

The Meaning of Confidence Most of the time, confidence has a clear meaning attached. Thus, confidence is often associated with security, stability, strength, and other positive meanings, whereas doubt tends to be associated with more negative meanings such as insecurity, ambivalence, or weakness. However, the meaning and the valence of confidence and doubt can vary between individuals and situations. For example, confidence

can be associated with arrogance or rigidity in certain contexts, and doubt can be seen as flexible and open-minded. We argue that if the meaning (or the valence) associated with confidence changes, the subsequent effects could also change, at least under some circumstances (see, e.g., Briñol, Petty, & Tormala, 2006).

One avenue to identify variations in the meaning of confidence comes from the antecedents of confidence. Theory and common sense suggest that the certainty of people's self-views is likely to be grounded in the *amount* of information they have about themselves as well as the *consistency* of this information. However, as reviewed in this chapter, self-concept confidence can depend on and be affected by other more transitory variables in the situation, such as the hand with which self-views are written, or the experienced difficulty in generating self-thoughts. In addition to these factors, and given that certainty in self-views is considered to be socially desirable, it seems possible that self-concept confidence might result from other operating motives related to impression management.¹⁵

Given that confidence is relatively independent of accuracy, and it can be affected by a wide variety of situational and individual variables, including the operation of strategic motives to create a positive impression, it seems quite plausible to argue that different bases of confidence might be likely to lead to different outcomes in some situations (see discussion of "true" versus "compensatory" confidence; Gross, Holtz, & Miller, 1995). Alternatively, confidence in self-views could lead to exactly the same outcomes in terms of stability and subsequent impact regardless of whether it is based on high (socially validated) or low (impression management) diagnostic information but such effects could be due to different processes (for a review of the antecedents of self-confidence, see DeMarree et al., 2007a). Importantly, in the present chapter we have not focused either on true or compensatory confidence, but rather on relatively incidental confidence (e.g., emerging from ease, embodiment, and so forth). Although the effects of incidental confidence seem to be similar to those that emerge from true confidence, future research should explore the extent to which there might be different consequences associated with different bases of confidence.

Antecedents of Confidence As implied above, the same variable might increase or decrease certainty as a function of other variables, such as one's naïve theories of the meaning of that variable. A given variable can also increase or decrease certainty depending on other factors. For example, repetitive thoughts that are recurrent (i.e., when a person keeps having the same thoughts over and over again) might undermine confidence if the thoughts are ruminative and not sufficient to form a clear judgment (e.g., if the thoughts are mixed or do not provide a valid basis for judgment), but can increase confidence if the thoughts are already well-integrated in a judgment. Some initial support for this point comes from the attitudes domain. For example, Briñol, Petty, and Rucker (2006) found that asking participants to repeatedly write down the same thoughts they generated in response to a persuasive message reduced (for positive thoughts) or increased (for negative thoughts) persuasion by decreasing the confidence with which those thoughts were held. In contrast, Holland and colleagues (2003) found that the repetition of a summary evaluative judgment increased its accessibility leading to greater confidence (see also, Tormala, Petty, & Briñol, 2002). Taken together, these findings suggest that repetition might increase or decrease certainty depending on other variables, such as the specific mental construct that is rehearsed (for further discussion, see Briñol, Petty, & McCaslin, 2009). Consistent with this view, Segerstrom, Stanton, Alden, & Shortridge (2003) found that mental repetition was associated with more or less well-being, depending on the valence of the thought or the controllability of the repetition. Thus, repeating thoughts that are perceived as uncontrollable can lead to non-adaptive self-related consequences (by increasing rumination and

uncontrollable intrusiveness), whereas repeating thoughts that are perceived as controllable can lead to more adaptive outcomes (by allowing strategies such as refocusing and reframing). In addition to the specific construct rehearsed, it could be that the number of repetitions matters. For example, a few repetitions could enhance confidence in the construct but many repetitions might trigger doubt as continuing repetition might signal that something is wrong with the thought.

Restoring Confidence Sometimes when a self-view is cast in doubt, individuals are motivated to behave in ways that restore the sense of confidence they would like to associate with that self-view. As described earlier, affirming an unrelated, important aspect of the self with a typical self-affirmation induction might help to increase confidence (Briñol, Petty, Gallardo et al., 2007; McGregor, Zanna, Holmes, & Spencer, 2001). Another more direct bolstering strategy might involve generating thoughts (e.g., actively searching for past episodes consistent with that self-view) or generating other types of evidence (e.g., buying products related to the self-view; Wicklund & Gollwitzer, 1982) that support the doubted self-view. For example, Zhong and Liljenquist (2006) showed that participants who received (vs. not) a threat in a domain of their identity (e.g., morality) were more likely to seek out and purchase products that could help them to reduce the transitory doubt about their self-image (e.g., cleaning products), and that by using those products (e.g., "washing their sins") they felt their self-view (morality) was restored. Conceptually consistent with the MCM outlined earlier, this research suggests that self-views held with doubt can still be impactful under some circumstances. Furthermore, this research on doubt compensation suggests that people sometimes try to correct for the doubts they do not want to have (or do not know that they have). At least on the surface, this logic seems similar to the literature on attitudes toward stigmatized groups, revealing that people who score high on automatic measures of prejudice and high in the motive to control their prejudice score low on deliberative (controllable) measures of prejudice (see, e.g., Olson & Fazio, 2009, for a review). That is, people with high automatic prejudice but who do not want to be that way appear to overcompensate on a more controllable prejudice measure. This may be similar to people who experience unwanted doubts and attempt to overcompensate for these doubts by engaging in behaviors associated with confidence.

Attenuative versus Reversal Effects of Doubt We note that perhaps the primary finding we have highlighted in this chapter is that meta-cognitive confidence appears to exert a *magnifying* effect on one's self-related cognitions. In contrast, doubt exerts an *attenuative* factor in one's thoughts, reducing the impact of these primary cognitions, at least in deliberative situations. Future research should explore the conditions and processes by which doubt might *reverse* (rather than simply attenuate) the effects of first-order cognition. For example, if people have extreme doubt about what they have in mind, they might want to do the opposite of their thoughts. Some studies have shown preliminary evidence in favor of the possibility that doubt can sometimes lead to such overcompensation (contrast) effects (e.g., Briñol, Petty, & Barden, 2007). In particular, people might be especially likely to do the opposite of their thoughts when they doubt self-views that are represented or framed in a dichotomous manner (e.g., winner vs. loser, extrovert vs. introvert, smart vs. dumb) than when those self-views are seen as more continuous (e.g., success, intelligence, age). Obviously, a large number of individual (e.g., dysfunctional use of dichotomous thinking; Beck & Greenberg, 1994) and situational (e.g., format of response) factors might influence these constructs and therefore whether doubt reverses or attenuates cognition.

Multiple Roles for the Self In this chapter we have reviewed work in which self-related thoughts can be affected by meta-cognitive confidence. Thus, we have focused on cases in which the self was relevant at the primary level of cognition. However, as is the case with any variable, and as described earlier for confidence, the self can also be relevant at other levels of cognition, operating through a variety of processes. For example, in one study, Petty and Briñol (2009a) first asked participants to read either strong or weak messages in favor of comprehensive exams. This manipulation led participants to generate either positive or negative thoughts toward the proposed policy. Importantly, those thoughts were *subsequently* made more or less self-relevant by asking participants to think about either the self-relevance or the general implications of the policy. Consistent with the self-validation notion, the thoughts generated regarding the proposal had a greater impact on attitudes when they were made self-relevant than when they were not. Among other things, this research reveals that self-validation can account for an already well-established persuasion outcome (e.g., a greater argument-quality effect under high- vs. low-personal relevance), but by a different process than postulated previously (through thought-confidence vs. thought-quantity). This work also specifies the conditions under which each process is more likely to operate. That is, self-relevance introduced before the message influences the amount of thinking (Petty & Cacioppo, 1979), whereas self-relevance induced after the message affects thought-confidence.

In closing, it is important to note that in still other conditions the self can operate through different processes. For instance, under low thinking conditions, the self can influence a variety of judgments by serving as a peripheral cue such as instilling more liking when associated with the self (e.g., Walter & Trasselli, 2002). Under high thinking conditions, however, the self can affect judgment by biasing thoughts or by serving as a piece of evidence (e.g., Taylor & Brown, 1988; Tesser, 1988). Thus, although we focused most of our discussion on describing the multiple roles that confidence and doubt associated with the self can play in determining a variety of outcomes, such an analysis can also be applied to the self itself, along with a host of other potentially self-relevant variables.

NOTES

1. The distinction between primary and secondary cognition implies that confidence and doubt can sometimes serve as independent cognitive elements rather than as two opposite ends of the same continuum. For example, as described later in this review, when doubt or confidence serves as a primary cognition, people can have doubt (or confidence) in their own doubt (or confidence). Within the primary or the secondary level of cognition, however, confidence and doubt are more likely to serve as opposite ends of the same continuum.
2. Although we have highlighted the effects of confidence in self-relevant cognitions in this review, confidence applies to whatever the available mental contents are at the time, including not only self-related thoughts, but also non-self-relevant beliefs, attitudes, emotions, goals, and other mental constructs.
3. Although directly asking people to rate their certainty has been the most used procedure to assess confidence, other more indirect techniques sometimes have been used, such as using the intra-individual standard deviation of self-esteem scores as an index of self-certainty (see, e.g., Wright, 2001, for a review). Alternatively, these indirect measures might just be considered as additional consequences of certainty.
4. Although one might expect that confidence stems from an accurate perception of reality, confidence has been affected by many variables unrelated to accuracy (see Petty, Briñol, Tormala et al., 2007, for a review). As a consequence, when people are asked to predict their future behavior or even their own (and others) personality, there is no relation or only a

modest correlation between confidence and predictive accuracy (e.g., Dunning, Heath, & Suls, 2004).

5. Although the manipulation in this study was intended to influence certainty, it might have just primed consistency or inconsistency thus accounting for the results. Since a manipulation check for confidence was not provided, the issue remains unclear.
6. Because most of the studies conducted in this domain have been correlational, the presumed directionality of some of the effects remains unclear. For example, when considering the studies in which self-certainty was described as leading to different forms of self-consistency, such as asking for confirmatory feedback (e.g., Pelham, 1991; Pelham & Swann, 1994; Swann & Ely, 1984), it would be plausible to argue the opposite directionality. That is, self-belief confidence might be the product, rather than the precursor, of interpersonal congruence. This argument can also be applied to the relationship between self-esteem certainty and other concepts, such as self-esteem stability and self-esteem clarity. Future research would benefit from designs in which confidence is manipulated rather than measured (e.g., Briñol & Petty, 2003; Petty et al., 2002). When this is not possible, conducting analog studies with other constructs, such as attitudes, where novel beliefs and their associated certainty can be more easily manipulated, in addition to correlational studies, can help to increase the validity of such causal claims (for further discussion, see DeMarree et al., 2007a).
7. This research is consistent with numerous studies showing that a sense of confidence can emerge from the body. In line with Darwin's idea that facial and postural feedback facilitates the emergence of related emotions, research on embodiment has found that when induced to slump in their chair or to shake their heads, people feel decreased confidence (for a review, see Briñol & Petty, 2008).
8. It is important to note that the self-validation findings described in this section not only require high thinking conditions, but also are more likely to occur when the thoughts validated have a clear valence. That is, inducing confidence in mostly positive or negative self-related thoughts increases the impact of those thoughts. However, increasing confidence simultaneously in mixed thoughts (e.g., both positive and negative thoughts) would not lead to a polarization effect on judgment (e.g., Briñol, Petty, & Tormala, 2004, Experiment 2). Enhancing confidence in opposing thoughts not only prevents forming a clear judgment, but can also lead to ambivalence, unless confidence is attached to just one side of the conflicting thoughts (see Schwartz, Chapter 4, for a similar view on self-relevant thoughts).
9. There are a variety of individual difference variables that appear relevant to doubt, such as causal uncertainty (Weary & Jacobson, 1997), uncertainty orientation (Sorrentino & Short, 1986), and defensive confidence (Albarracín & Mitchell, 2004; see Briñol & Petty, 2005, for a review). Although these variables deal in one way or another with doubts people have, they do so in a relatively direct way. That is, most of the items contained in the scales consist of direct statements about thinking, rather than second-order thoughts such as the ones described for meta-cognitive confidence. For example, the self-doubt scale (Oleson et al., 2000) measures individual differences in uncertain feelings about one's competence and ability. This scale contains items such as "More often than not I feel unsure of my abilities." These self-doubt judgments take place at the direct, first level of cognition and are different from, for example, the second-order judgments described in the section on self-concept certainty. As any other primary cognition, these individual difference variables can be accompanied by meta-cognitions. For example, a person might endorse the same statements in a given scale with different degrees of confidence, and these ratings can moderate the way in which the construct predicts different outcomes (see DeMarree et al., 2007a).
10. This work suggesting that meta-cognitive doubt can serve as an antidote to invalidate self-doubt beliefs is conceptually similar to work on eyewitness testimony described by Leippe and Eisenstadt (Chapter 3). Although both accurate and inaccurate eyewitnesses can report confidence in their identifications and behave similarly, the authors speculate that the latter individuals might have some uncertainty associated with their confidence judgments. That is, some individuals (e.g., overconfident, inaccurate eyewitnesses) might have doubt in their memory confidence. As we describe in this chapter, the degree of confidence

(vs. doubt) that a person has in their confidence (or doubt) can be assessed and can be consequential.

11. This framework can be related to the work described by Schwartz (Chapter 4). Specifically, Schwartz describes cases in which people are conflicted when having multiple choices (some of which might be incompatible with one another) to decide who they are. These explicit self-discrepancies can be associated with difficulties in making self-related decisions, leading ambivalent individuals to seek further information in order to reduce their conflict. Schwartz argues that people can be involved in different self-roles, for example, some of which are not personally endorsed (e.g., in the case of a job requirement). Having people act in a given manner can lead individuals to generate automatic self-associations that are then subsequently negated or labeled as invalid. This could lead to what we call implicit ambivalence, which can be associated with reduced confidence (as assessed with implicit measures) and also with enhanced information processing.
12. Although there might be other processes relevant to understanding how confidence operates, we focus on this particular set of processes articulated by the ELM because they have been the most fruitful way to account for how many variables other than confidence can affect judgment (see, Petty & Briñol, 2006b, for a discussion). Thus, we consider that each of these processes can be applied to social judgment more broadly, including self-judgments.
13. Also under high thinking conditions, if confidence was made salient and people perceive it as a possible biasing factor, they might attempt to correct their judgments for the perceived contaminating impact of their own confidence (Wegener & Petty, 1997).
14. Participants were instructed to think carefully, but no additional inducements, such as accountability, were provided, allowing participants to think more or less if they wanted. This allowed us to test the different mechanisms within the same paradigm.
15. For example, individuals with high versus low self-esteem differ in terms of their social desirability concerns (see also Olson, Fazio, & Hermann, 2007). To the extent that certainty in self-views is considered to be socially desirable, those with higher impression management concerns should be more likely to report greater certainty in their self-conceptions. Thus, since individuals with higher self-esteem are more likely to present themselves in a positive way than are those with lower self-esteem (e.g., Baumeister, Tice, & Hutton, 1989), it may be the case that esteem differences in confidence sometimes reflect differing impression management concerns (e.g., Wright, 2001; see also Baumgardner, 1990). Indeed, some other consequences of self-concept certainty described in this chapter (e.g., stability, resistance, and prediction of behavior) might also be partially due to impression management. Furthermore, people might report feeling confident in a given self-view in order to compensate for other unrelated internal doubts (e.g., McGregor et al., 2001).

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